

a golfer hits a golf ball
($m = .05 \text{ kg}$) with a club that has
a mass of $.15 \text{ kg}$ and a velocity
of 40 m/s West Before

$$m_{\text{ball}} = .05 \text{ kg}$$

$$m_c = .15 \text{ kg}$$

$$v_{\text{Ball}} = 0 \text{ m/s}$$

$$v_c = 40 \text{ m/s West}$$

West is Positive
East is Negative

1.) What is the p of the golf ball

$$m_B = .05 \text{ kg}$$

$$v_B = 0$$

$$p_B = ?$$

$$p = m v$$

$$p = (.05 \text{ kg})(0)$$

$$p = 0 \text{ m/s}$$

2) What is the p of the club

$$m_c = .15 \text{ kg}$$

$$v_c = +40 \text{ m/s}$$

$$p_c = ?$$

$$p = mv$$

$$p_c = (.15 \text{ kg})(40 \text{ m/s}) = 6 \text{ kg m/s}$$

3) what is the total p before the collision?

$$P_{\text{TOTAL}} = P_B + P_C$$

$$P_B = 0 \text{ kg m/s} \quad 0 + 6$$

$$P_C = 6 \text{ kg m/s}$$

$$P_{\text{Total}} = 6 \text{ kg m/s}$$

4) if the CLUB After the collision ~~is~~ HAS A velocity of 25m/s West what is the the Clubs momentum After!

$$m_c = .15 \text{ kg}$$

$$v_c = 25 \text{ m/s}$$

$$p_c = ?$$

$$p_c = m_c v_c = (.15 \text{ kg})(25 \text{ m/s})$$

$$p_c = 3.75$$

5) what is the momentum of the ball after collision.

$$P_{\text{total}} = P_B + P_C$$

$$\begin{array}{rcl} 6 \text{ kg m/s} & = & P_B + 3.75 \text{ kg m/s} \\ - 3.75 \text{ kg m/s} & = & - 3.75 \text{ kg m/s} \end{array}$$

$$2.25 \text{ kg m/s} = P_B$$

6) What is the velocity of Golf ball after collision?

$$m_B = .05 \text{ kg}$$

$$p_B = 2.25 \text{ kg m/s}$$

$$v_B = ?$$

$$p = mv$$

$$\frac{2.25 \text{ kg m/s}}{.05 \text{ kg}} = \frac{(.05 \text{ kg}) v_B}{.05 \text{ kg}}$$

$$45 \text{ m/s} = v_B$$